

# NRCS Disaster Response - 2011

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#### **2011 Events**

- Mississippi River Flooding
- Missouri River Flooding
- Hurricane Irene
- Bastrop Texas Fire



# Mississippi River (wikipedia)

- The Mississippi River floods in April and May 2011 were among the largest and most damaging recorded along the U.S. waterway in the past century.
- In April 2011, two major storm systems deposited record levels of rainfall on the Mississippi River watershed. When that additional water combined with the springtime snowmelt, the river and many of its tributaries began to swell to record levels by the beginning of May.
- For the first time in 37 years, the Morganza Spillway was opened on May 14, deliberately flooding 4,600 square miles (12,000 km²) of rural Louisiana to save most of Baton Rouge and New Orleans.
- The New Madrid Floodway Project is an earthen levee to protect the rich farmland of Mississippi County. The section of the Levee at Birds Point was engineered so that when the water reached 61 feet (19 m) on the nearby Cairo flood gauge, the river would over-top the levee and erode it away. This would allow the river to fill the 133,000 acres (54,000 ha) floodway and relieve pressure on the flood control systems in place at nearby Cairo, IL and Hickman, KY. This whole area has been engineered to allow for intentional flooding but has only been used twice: in 1937 and 2011.













New Madrid Floodway – Post flood





New Madrid Floodway – Post flood



## Missouri River (wikipedia)

- The flooding was triggered by record snowfall in the Rocky Mountains of Montana and Wyoming along with near record spring rainfall in central and eastern Montana.
- All six major dams along the Missouri River released record amounts of water to prevent overflow which has led to flooding threatening several towns and cities along the river from Montana to Missouri.
- In the second half of the month of May 2011, almost a year's worth of rain fell over the upper Missouri River basin. An estimated 212 percent of normal snowpack in the Rocky Mountains contributed to this flooding event.















# NRCS Steps

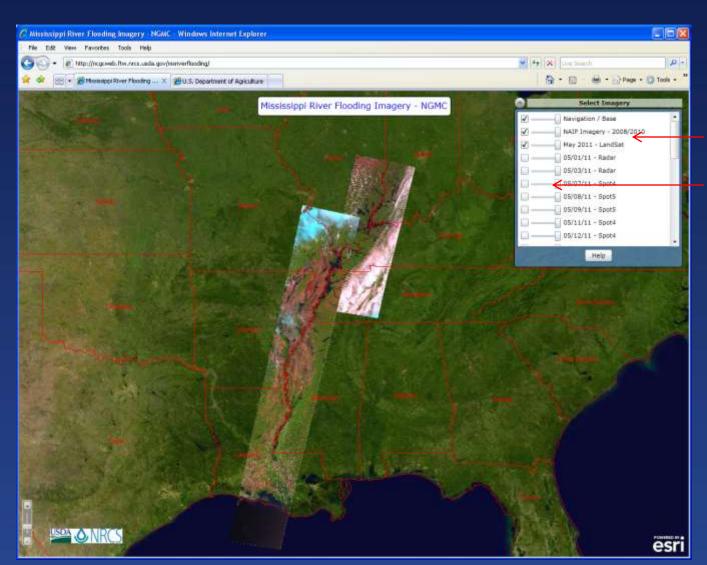
- Glenn Bethel reports
- Download imagery from USGS
   Hazards Data Distribution System
   <a href="http://hdds.usgs.gov/hdds2/">http://hdds.usgs.gov/hdds2/</a>
- Create ESRI Image Services
- Create Silverlight Web Viewers



Microsoft Silverlight is an application frame work for writing and running rich internet applications. Silverlight is available as a plug-in for most web browsers running under MS Windows.

- Suling Zhao Image Services
- Art Ullman Silverlight





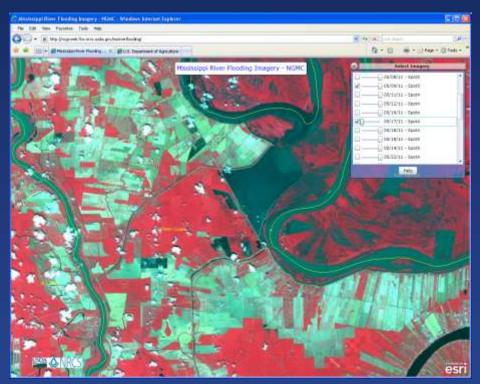
Data Layers
Transparency

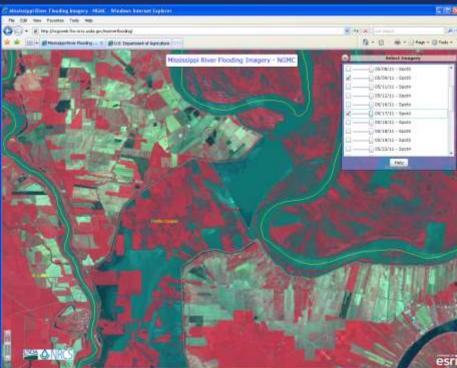
Zoom

http://ncgcweb.ftw.nrcs.usda.gov/msriverflooding/



# Morganza Spillway







At 10:03 pm on May 2, 2011 the U.S. Army Corps of Engineers activated the Birds Point – New Madrid Floodway by detonating explosives along a stretch of the Mississippi River levee just downstream of Cairo, Illinois.

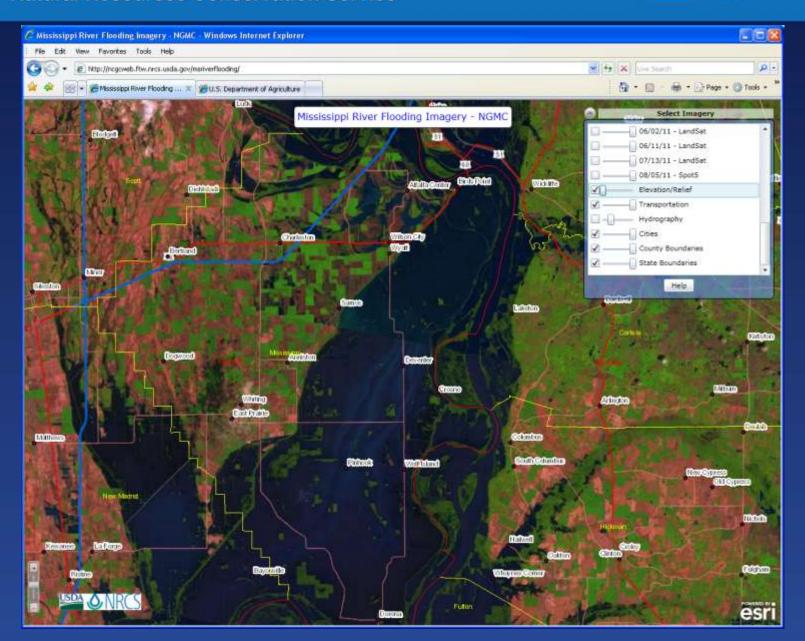


NAIP image from 2008-2010 south of Cairo, IL. The yellow asterisk is the location of the levee breach. Resolution is 1-meter.



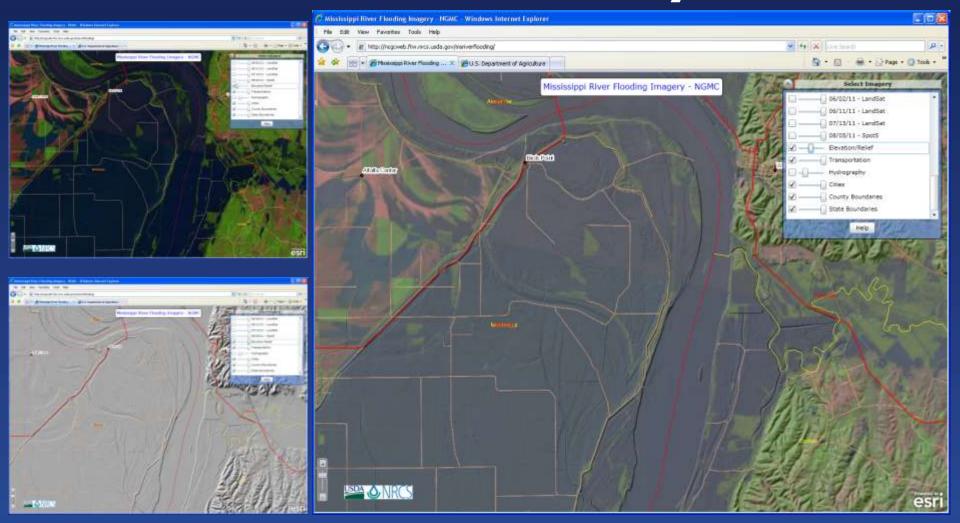
SPOT satellite image from May 11, 2011. The image is a color infrared display with vegetation shown in red and water in blue. Resolution is 20-meters.



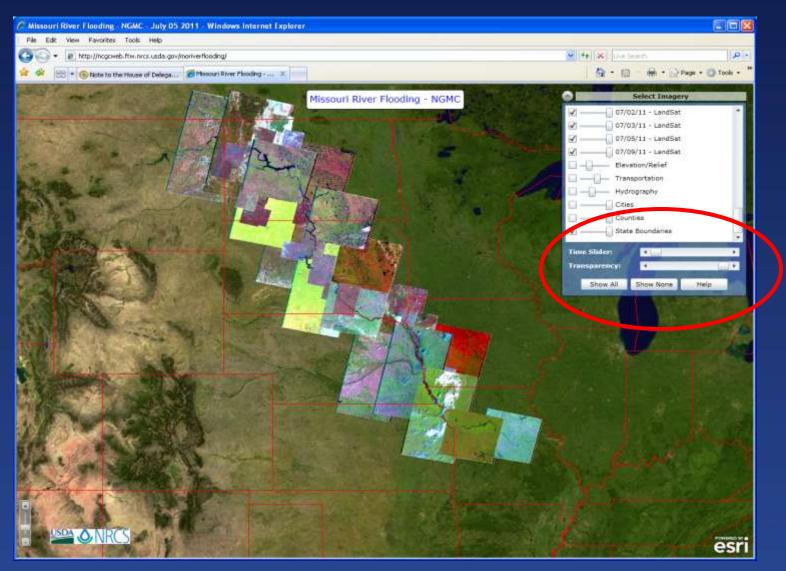




## **New Madrid Floodway**

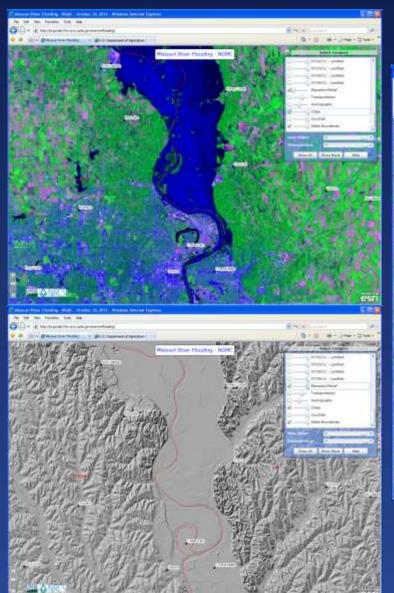


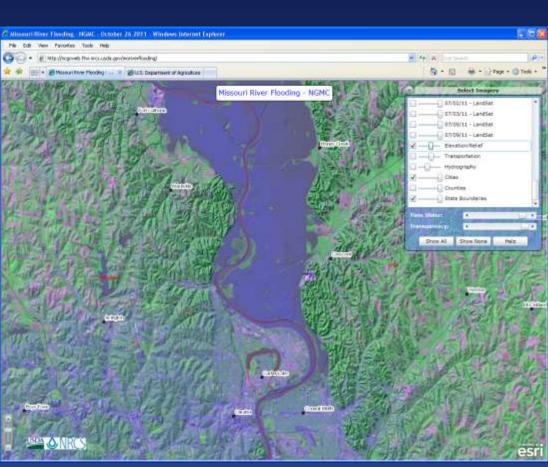




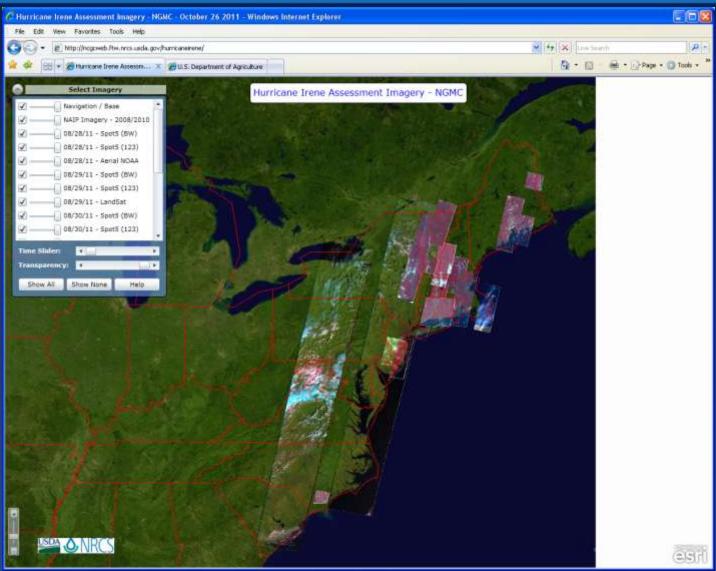
http://ncgcweb.ftw.nrcs.usda.gov/moriverflooding/







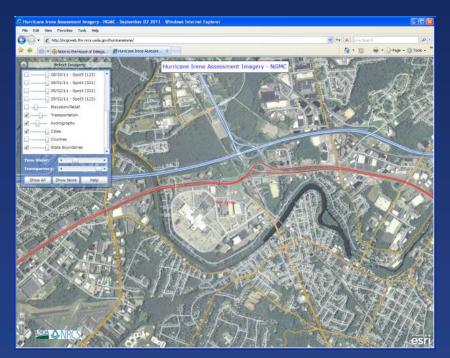




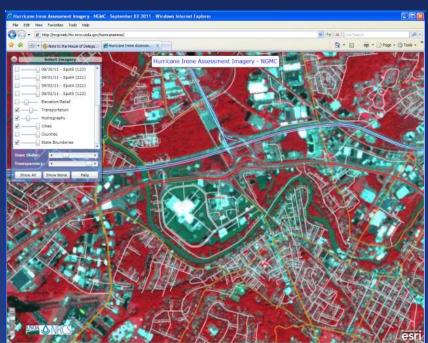
http://ncgcweb.ftw.nrcs.usda.gov/hurricaneirene/



The Hurricane made landfall on Sunday, August 28, 2011. NGMC had the Web Viewer for Hurricane Irene up on Monday afternoon August 29.



NAIP image from 2008-2010 over Paterson, NJ using the Web Viewer.



SPOT satellite image from August 29, 2011 shows a flooded shopping mall in Paterson, NJ.

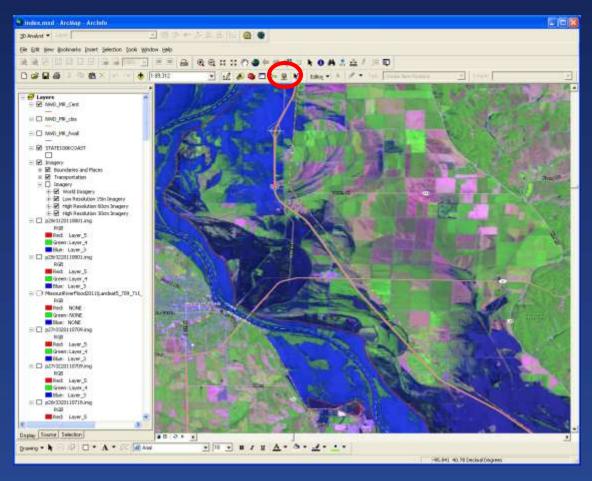


#### **Statistics**

- MS 35 Landsat and 126 SPOT
- MO 59 Landsat and 59 SPOT
- Irene 17 Landsat, 108 SPOT, &
   414 NOAA photos



# ArcMap Image Service



ncgcimg01.ftw.nrcs.usda.gov:10010



## Nebraska City, NE



NAIP imagery from 2008-2010 showing the Missouri River at Nebraska City, NE.



Landsat image from June 30, 2011 showing the Missouri River at Nebraska City, NE.



## Minot, ND





# Hamburg, IA



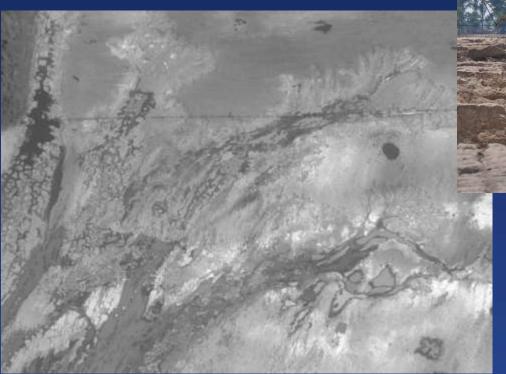


NAIP

Landsat 5 – June 30, 2011



## **New Madrid**





GeoEye – July 10, 2011







# Bastrop, TX Fire



**NAIP** 

Landsat 5 – Sept. 11, 2011



# Summary

- Speed one day turn around
- No duplication of data
- USDA computer network only



### Websites

- http://ncgcweb.ftw.nrcs.usda.gov/hurricaneirene/
- http://ncgcweb.ftw.nrcs.usda.gov/moriverflooding/
- http://ncgcweb.ftw.nrcs.usda.gov/msriverflooding/